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Individualizing Junior High Geography

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INDIVIDUALIZING JUNIOR HIGH GEOGRAPHY

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

Over the educational years it has been generally accepted that each phase of the educational process must have objectives that are meaningful and clear cut if education is going to justify its existence. With meaningful objectives educators at any level employing any method will know where they are heading, what they are striving for and above all what they hope to accomplish.

In 1954 the Educational Policies Commission Report presented the ideals toward which all educators should be striving. That report among many things suggested as objectives in the instructional program the development of self-reliance and initiative in the student. If it is the goal, or objective, of education to develop self-reliance and initiative, individualized instruction may be a better method in reaching these goals. As Burns and Craik (1964) stated it:

> If learning is defined as change in behavior then practically speaking the only important goal is that the student acquire the desired behavior...Our educational leadership must recognize that many traditional practices exist for administrative convenience and are teacher-oriented rather than learner-oriented. Admiration for the United States system of education, even if it is the best in the world, should not blind us to our deficiencies (2:156).

Objectives, such as self-reliance and initiative are real enough. However, to meet these goals teachers should vary their approach with their students to see if true self-reliance and initiative have been reached. Educators know that in each classroom:

> ...there exists a wide range of individual abilities, children come from different social and economic backgrounds, children have various degrees of readiness for learning any one thing, children learn and grow at different rates, children learn best when the learning task is within their ability, and children learn best when they feel secure (16:281).

Even though these facts are known each student receives the same "treatment" in that the majority of instruction in today's schools is geared to the masses rather than the individual. This is the problem. To meet the objectives that are known to be real, educators have to resort to better instructional methods. Individualized or individually prescribed instruction is possibly one answer to the problem.

In fact, a survey of the history of instruction indicates that formal learning began very much as an individual affair--that is, students came to school to receive instruction individually from the teacher. It must be realized, however, that at that time education was generally for a select few; therefore, fewer pupils attended school. This is what made possible the provision of individualized instruction for those students. For example, in the one-room school, pupils proceeded on an individual basis rather than as intact groups. As educational advantages were offered to a larger proportion of the population, education in the United States deemed it necessary to deal with students in grade-level groups, and individualized instruction diminished.

Since the days of the one-room schoolhouse and as awareness of individual differences among pupils increased attempts have been made by a few educators to individualize instruction even within the context of schools offering

mass education. While the one-to-one ratio in its truest sense does not and cannot exist in today's systems individualized instruction can be and has been performed successfully.

Individually prescribed instruction certainly typifies what can be done to help resolve the age-old problem--that is, providing for each student, each day, his own program of studies.

This idea that the child does not become the end result of the objectives set down by educators because of "mass education" has come to odds with this instructor's view point. This incongruity between professed goals in education and the means by which most teachers are attempting to achieve these goals has prompted this study.

I. THE PROBLEM

Statement of the problem. The purpose of this study was to determine whether certain behavioral and attitudinal changes would occur among junior high geography students as a result of individually prescribed instruction in which the students were also involved in the decision making.

This study was designed to test the following two null hypotheses:

(1) Junior high school geography students will exhibit no change in scholastic average after being exposed to individualized instruction;

(2) Junior high school geography students will exhibit no change in attitude towards the subject after being exposed to individualized instruction.

The study was also designed to obtain student evaluations of "individually prescribed instruction" through the use of an opinionnaire completed anonymously at the end of the teaching year.

Importance of the study. This study is important in that it relates to one of the fundamental goals of education which can be found in any of the major policy statements and philosophical ideas underlying American education. This goal is specifically concerned with the schools' responsibility to teach individuals and not classes. According to Burns and Craik (1964):

> Let students, after having entered any grade, pursue their education at their individualized optimum pace rather than indulging in the current practice of setting an average pace for a heterogeneous group. Let students pursue their course work on a level geared to their current ability to achieve, rather than proceeding with a lockstep method whereby all children learn the same thing the same hour every day (2:157).

Another very important aspect of this study is that it explores teaching a subject out of the social studies via individualization which has by in large been untried. Available literature reveals little concerning the individualization of the social studies. Classes at the college level dealing with individualized instruction also shows a void in the social studies area. This study then is also an attempt to apply the concepts of individualized teaching to a relatively untried discipline.

If this study develops an awareness as to why and how teaching geography by individualization is an increased improvement over traditional and/or other methods, then it will have aided in the realization of the purported goals and

values in educating the student.

Limitations of the study. Providing an adequate control group for the study was impossible so it is limited to an experimental group of the eighteen students participating in seventh grade geography at Meeteetse Junior High School, Meeteetse, Wyoming during the second semester of the 1968-69 school year.

It was anticipated that it would be difficult to start teaching by individualization for the first time, conduct the study and end up with a class of highly motivated students who had been exposed to traditional teaching methods for six previous years from other teachers including this writer who taught the same class as sixth grade students. Conscientious attempts were made to provide the enthusiasm for the new method.

Finally, individualized instruction from this teacher's view point means the successful implementation of some audio-visual material and other instructional media. Every attempt was made to put to practical use the machinery and material the school district had with much improvising to supplement the individualized process.

II. DEFINITIONS OF TERMS USED

Behavioral Objectives. Stated instructional goals in terms of the behavior that one desires the learner to demonstrate.

Individualized Instruction. An instructional system which attempts to adapt learning to the needs of the individual. Inherent in this definition is the idea the student also is directly involved in the decision making of the work he will perform.

Levels. A way of categorizing the difficulty of the objectives within the continuum with 1. being the simplest and 1....the most difficult.

Post-Test. This instrument is assigned at the end of each unit of work to determine mastery. Seven or eight different ability level tests may be constructed over the unit to meet the individual needs of the students.

Prescription. A plan for an individual to master a particular objective on the learning continuum.

Rate of Learning. The time it takes a student to master a unit.

III. OVERVIEW OF THE REMAINDER OF THE STUDY

Chapter two is a review of the literature concerning the ideas of individualized instruction and why this method of instruction has become of increased importance.

Chapter three describes the procedures that were used to implement teaching by individualization with the eighteen seventh grade geography students of Meeteetse Junior High School, Meeteetse, Wyoming. This chapter will also

describe the Iowa Tests of Basic Skills and the other methods used in determing the success of the study.

Chapter four contains the results of the study and an analysis of the data in relation to the two null hypotheses previously stated. A description of the information gathered on the student opinionnaire will also be included.

A summary, conclusion, discussion, and recommendations for further study will be included in the final chapter.

CHAPTER II

REVIEW OF THE LITERATURE

Little has been written that pertains directly to the individualization of social studies, much less geography. In fact correspondence from the Learning Research and Development Center at the University of Pittsburgh where the federal government has allocated Title V funds for a pilot study in individually prescribed instruction indicates most of that center's research has been concerned with individualizing reading and math. One study, a doctoral dissertation by Jettye Fern Grant, did touch on the individualization of social studies at the intermediate level. There is, however, literature which discusses individualized instruction on a general basis. This chapter, therefore, will review some of the more relevant literature concerning what has been attempted and started in individually prescribed instruction.

I. LITERATURE COVERING THE HISTORY OF INDIVIDUALIZED INSTRUCTION

It doesn't take an educator to know that a vast range of differences occur among children. But it does take a professional educator to provide for these individual differences. In the early past little concern was shown for prescribing a special individualized program for each student because instruction was nothing but individualized. With so few people attending schools and with America being largely a rural nation the one-room school prevailed and each

child enjoyed for the most part a one-to-one relationship with the teacher.

This type of education did not last long as more and more people crowded into the classroom and states began adopting compulsory education laws. However, some educators did not give up the idea that individualization was at least the better method of instruction. As early as 1925 and 1936 attempts were made to bring back to education the methods of individualized instruction. The entire twenty-fourth yearbook (1925) of the National Society for the Study of Education was concerned with the idea of adopting instruction to the individual abilities of the student (31:5). It is speculated this report only received a passing glance as most teachers were more concerned about mass educating the millions of students who crowded the classrooms.

Mayer and Oakes (22:244) reported on the implementation of the Dalton Plan, which in its truest sense is individually prescribed instruction, in a small Michigan high school in 1936. Student response to the plan was as follows:

> The boys and girls settled down to work the moment they entered the school and in the evening many had to be 'shoo-ed' out of the building. Occasionally they even reported on Saturday mornings...(22:248).

However, such student enthusiasm evidently did not carry over to the professional educator as little was done or heard of in the realm of individualized instruction until the mid-1950's. By this time Americans were living in an era of complexity, unclarity and change. The American society was also imposing pressure for academic excellence. Schools responded by imposing

further pressures on pupils by introducing complete automated instruction and early introduction to subject matter. Some schools and educators responded by re-designing the individualized approach to instruction.

This re-vitalized approach to teaching has taken hold this time. For the most part the educator has implemented very successfully approaches to individualized instruction in reading and mathematics with some work being carried out in the sciences. To date, little has been done to offer a concrete plan for the successful individualization of the social studies. According to Frederick P. Cyphert, "Individualized study works more easily in some disciplines than others, for example, more readily in the langauge arts and the natural sciences than in the social science disciplines." (28:205).

II. LITERATURE COVERING THE NEED FOR INDIVIDUALIZED INSTRUCTION

To shift to the individual the responsibility of his continuing education has often been identified as the ultimate goal for American education. Cyphert (1964) says, "Learning is change in behavior and such change is necessarily personal and consequently individualistic." (28:205). With this in mind one might say that self-pacing, self-discovery and self-independence are all central to individual learning to learn.

What, then, does this hold for the traditional concepts of teaching? It has become to mean that there exists a need to improve our instructional approaches so that the student really does learn. Implied in this assumption of

need is the idea that it is no longer necessary to assume that everything to learn is what the teacher deems necessary for the child to learn. In other words the child should be able to learn some things that he wants to learn. Tripp (1969) states that under certain individualized approaches to teaching, "The student may choose any topic of interest to him; the only limits would be those imposed by facility or material limits of the school." (27:345). The teacher under this kind of learning environment becomes more of a consultant or resource person than an instructor. Some educators have gone so far as to label this technique of learning as an admission that teachers don't know how to teach and as a device for relieving teachers of the obligation to pay attention to students.

Proponents of individualized instruction agree, however, there are different methods of individualizing. The process mentioned above is an extreme that would tend to find more favor at the upper secondary or university level. The process of individually prescribed instruction at the elementary or junior high levels does involve the teacher as a teacher but it also allows the student to learn at a rate comensurate with his ability. The manner in which individualized instruction will be implemented in the classroom or for specific subject areas is up to the imagination every teacher possesses. Why should teacher individualize her teaching procedures?

One of the fears children possess in the learning situation is the fear of failure. If children are able to pursue knowledge in a way which becomes enjoyable fear of failure becomes for the most part non-existent. As Burnthal

suggests:

> Individualized instruction kindles the imagination and curiosity for learning. Under this method of instruction the student works only in competition with himself and is hence relieved of the stigma of failure (3:583).

Perhaps it is an oversimplification to say so but if individualized instruction did nothing more than to relieve the student from his fear of failure one might say the method is worth every consideration. There are many more justifications given for individualization among which includes permitting the child to ask much more valid questions about those particular aspects of a certain discipline which really matter to him. It stands to reason that questions will come up more readily when students pursue the facts about a concept in the way they want to pursue it rather than the manner in which a teacher looks for a structured answer to the concept. Allen (1968) states this idea in more revealing terms.

> With progress currently being made, one may in the near future be able to determine categories of basic questions which all human being must ask themselves, and resolve on a continuum which lasts throughout life. This pursuit will be in a sharp contrast to the endless hours now spent by professional educators in trying to decide which basic reader should be adopted, which basic science and social studies book have the best questions and answers; and which math series is the most "modern"; instead we may envision programs and select materials which will provide, under the guidance of an individualized instructional program, answers to valid questions.
>
> This will place individual learning within the grasp of every child in our schools. Classrooms will cease to be storage bins of facts and will become launching pads for learning. We will cease to view the acts involved in learning as serious problems for any human being with the capacity to ask basic questions (1:33).

Reoccurring throughout the literature on individualized instruction was the idea that unless a child can learn to face and to understand his strengths and weaknesses and look upon himself with a sense of respect and self-confidence, he cannot and will not use the ability he has and will not, therefore, achieve up to his full capacity. Individualized instruction seems to be the answer to the problem. As a student who was exposed to individualization at a Miami, Florida high school stated it: "A teacher can only try to put ideas in a student's mind, while in individualized instruction you can learn for yourself and remember better. Learning for yourself is very important." (28:230). It can be assumed this student was in all respects achieving at his full capacity and undoubtedly looked upon himself in respect and self-confidence.

Another goal of education has been to develop within the student a sense of self-direction and self-responsibility. Traditional methods of teaching can probably be justified when considering these goals for if students get their work in on time and study for their tests it can be rationalized self-responsibility is taking place. Proponents of individualized instruction stress the fact that self-direction and responsibility under an individualized program becomes more realistic because students knowingly and willingly practice these traits. Thus, the results carry more meaning for the individual pupil. Tripp (1969) says:

> In short, the primary stress and purpose of individualizing instruction is not the particular project the student chooses to work on, or how well he does in his project (although this is not unimportant); rather, the stress is on work for its own value and on the opportunity provided students to

> confront genuine conflicts of time and interest. Individualized instruction provides students with an opportunity to experience decision-making about these conflicts and to experience the consequences of their decisions (27:344).

Students do recognize the value of learning responsibility under individualized instruction. They clearly demonstrate that experiences under individualization are valuable and important as indicated by the response of a student learning under such instruction. "I found out that you had to rely on yourself more instead of someone else. Usually the teachers tell you what to do, but this way you tell yourself what to do." (27:346).

One of the perplexing problems educators have had to deal with is that each child has a potential learning difficulty which often times cannot be identified. Even gifted children with extremely high capacities for learning may demonstrate some difficulties. Too often in the past individual learning disorders have been ignored by offering programs of instruction to meet the needs of the so-called average learner. Despite learning problems children will learn and if given the chance to search for answers in their own manner the major learning block will be by-passed. In other words there is more than one way to learn. Since individualized instruction lets the student pursue his own course of learning it only seems realistic to assume learning difficulties become less of a hindrance. Scanlon (1966) says:

> Individually prescribed instruction consists of planning...a program of studies for each student that is tailored to his learning needs and to his characteristics as a learner. Team-teaching, no-graded classrooms, programmed instruction, grouping, etc., all have attempted to administratively accommodate within the classroom these differences among individuals.

> Individualized instruction takes a new direction in the continuing search for ways to adapt instruction to the individual. In it, there is taken into account such parameters of individual differences as rate of learning, learning disorders, amount of practice and to some extent, preference for mode of instruction (24:117).

While the attributes of any instructional program whether tried or experimental must have the best interests of the child in mind it does not exclude the manner in which the teacher views the method. In the literature reviewed on individualized instruction no actual strong criticism of individualization could be found. There were certainly some teachers who doubted this method was any more satisfactory than traditional teaching methods. By a very large majority, however, teachers who had tried individualized instruction commented on it most favorably and planned to incorporate it into their regular teaching routine. A typical response was, "I never would have believed a few months ago that students could learn so much on their own and that I could learn so much from them just by not being simply the source of knowledge." (27:348). The most revealing statement made was by Scanlon (1966).

> When teachers are given the opportunity to serve as diagnosticians and prescribers of instructional settings and materials, they best perform what their profession demands--they teach. Students are freed from the typical drudgery that most schools generally impose and for the first time find that learning has real meaning and that school can be lifelike (24:122).

No individualized instructional program is the same as another and each teacher has his or her own method of putting individualization into effective operation. The most important thing about any form of individualized instruction is that teachers and students can learn together. The teacher does not

simply become an authority-figure. Individualized instruction seems to be the answer to a far more healthier and satisfying relationship between student and teacher and the ever challenging pursuit of knowledge.

III. SUMMARY

In the beginning stages of education the form of instruction was by individualization since classroom size and physical make-up of the class deemed such instruction necessary. As the population of the United States increased and schools became more crowded, the ideas of individualization stepped aside in favor of mass educating the society. In the late 1950's and early 1960's a re-vitalized effort was made to put individualized instruction in the main stream of instructional methods.

The literature has demonstrated a need for the full implementation of individualized instruction. Children learning to learn, wanting to ask valid questions, searching for self-respect, self-confidence, self-direction, self-responsibility, in fear of failure and wanting to by-pass their learning disabilities seem to enjoy greater and more prolonged success when taught by individualized instruction. Teachers find the method rewarding too if not just from the standpoint of doing what their profession demands--<u>teach</u>.

If the literature suggests that there is a need for the successful implementation of individualized instruction, then this study may prove to be useful as a frame of reference for others who attempt to employ similar techniques.

CHAPTER III

PROCEDURES

This chapter presents a discussion of the manner in which individualization of geography was initiated and a brief discussion of the instruments used to test the hypotheses. It should be stressed that the way in which individualization was accomplished is not a sure prescription for all teachers. The ideas used were purely experimental since the individualization of geography has been for the most part untried at the junior high level.

I. DESCRIPTION OF SUBJECTS USED

The subjects in this study consisted of eighteen seventh grade geography students of Meeteetse Junior High School, Meeteetse, Wyoming, during the second semester of the 1968-69 school year. Class members ranged in intellectual ability from a low IQ score of 69 to a high of 126. All but one student had been in the school system since kindergarten, and all had the writer as a sixth grade instructor during the 1967-68 school term. This was the classes first exposure to individualized instruction.

II. THE INDIVIDUALIZED PROCESS

How does one go about individualizing a subject where little research has been done to be of assistance? There is really no clear-cut answer to that

question except using ones imagination and implementing ideas.

There are certain basic concepts every teacher wishes their student to grasp about a certain subject. In social studies it is somewhat more complicated. In her attempts at individualized instruction Grant (1964) states, "The scope of the social studies program was so broad that it was impossible to cover all the material available on each area; therefore, certain concepts were selected for emphasis..." (11:179). The important thing is not how a student goes about grasping the concept but that the concept is understood.

In putting into operation individualized instruction of geography five different processes were used. These included: reading in a regular classroom textbook; outside readings, inquiry training lessons; individualized exercises; and post-tests. Each of these processes will be defined in detail in the pages that follow. As a matter of convenience the same concept, location theory as applied to industry and cities, will be presented in each of the processes discussed. A complete list of concepts that were individualized in the study is presented in Appendix A.

Reading in a regular classroom text. Assignments given from or in the textbook are oftentimes very boring to students. However, if the teacher approaches the textbook from the viewpoint that there is something in that book each child is interested in, then the teacher should begin to devise ways in which to find that interest.

The text in the approach formulated to individualized instruction in this study was primarily used as a starting place for each concept. Students were given reading assignments of five to seven pages at a time. Before each assignment questions were written on the chalk board which the teacher felt were important to discuss over the reading. However, before these questions were written the class was continually reminded that perhaps the teacher's questions were not the most important to them, and each student was encouraged to come up with his own questions about the reading.

After the students had been exposed to this type of approach there was never any lack of questions. It was felt that the teacher's questions were no more than a starting point and if these questions were or were not answered, was not important. Indirectly most of the points the teacher wanted to stress came up in student questions. Far more importantly the individual was involved in asking and finding answers to questions important to him.

As the pages were covered and completion of a chapter or unit approached, the most important part of the discussion of the reading, the concept, began to be interjected and discussed between the class and the teacher. For instance, the concept mentioned earlier, location theory, was discussed in the reading on the states of Northeastern and Mid-western United States. Knowing the names and that there are many large cities in this area, that the industrial heartland of the United States is here, and the corn belt is also here is secondary. The primary concern is why they are here--in

other words location theory. At this point each individual was formulating his own ideas why.

What, then, has the student gained at this point? He has asked questions and found answers to things important to him. He has undoubtedly satisfied the criteria the teacher desires but far more importantly, he has begun to think for himself. The introduction of the next step is now possible.

Outside Readings: That the student should be involved in much of the decision making about how he approaches answers to concepts was one objective of the individualized process. Free selection of the outside reading material was always guaranteed each student.

Outside readings were nothing more than pages from books checked out from the library which contained information about the concept. Since the class had wide variances in reading ability, books of different reading difficulty were included in the selection. It seemed desirable to have the students exposed to the various printed materials available on a certain concept rather than be solely confined to a structured textbook.

On the day the books were brought to the classroom time was made available for all students to check each book to see which one was most desirable. Usually five to six books were included in the selection. The only set time for completion of the reading was before the post-test. Each student signed a check sheet indicating what book he chose to read. People more

familiar with individualized teaching techniques might consider these check sheets as simple versions of "job-cards" or "contracts". In some instances a student would read two or three of the selections. A sample check sheet used on location theory and the first names of the students selecting the books can be found in Appendix B.

Inquiry Training. Inquiry training does not have to be a specific part of an individualized program as inquiry can be conducted at any time under any instructional method. This writer personally believes it very adequately fits into the plans initiated for this study in individualization.

Quite frankly the first two or three lessons in inquiry went rather poorly. Someone trained beforehand in the art of inquiry would probably have better success than a person only vaguely exposed to the principles of inquiry. In time the lessons improved and students became more and more anxious to become involved in the inquiry lessons.

It is strongly felt that inquiry training adapts itself particularly well to individualized instruction because each individual student is forming his own theory about a certain presentation. It should be understood that under the inquiry lessons conducted in this study there was no real right or wrong answer as long as the student had a theory which made logical sense. If there was any doubt about the logic of a response, the teacher and pupil met during study breaks to further pursue why the student responded the way he did.

Generally speaking, one or two pictures with no caption and dealing with the concept being pursued would be presented to the class on an overhead projector. The idea was to create a theory about what the picture(s) had to do with the concept. Yes and no questions were asked by the students of the teacher. Usually it took between fifteen and twenty minutes before the class began to realize the relationship between the picture and the concept. When too many theory questions, which can only be judged theory questions at the discretion of the teacher, were being asked, the projector was turned off and the students asked to continue on their own to think and formulate their own theories. The pictures were placed on a bulletin board so students could periodically study them in reaching their theories.

In dealing with the location theory concept, two pictures showing a prosperous community in its natural surroundings and a ghost town were shown. Rather hastily conceived questions were asked at first but did not take long before students were applying the various aspects of location theory in arriving at a theory of their own about the pictures. The most important thing happening was that what students learned in one situation was being applied to another situation and all at their own initiative. They began to teach themselves to learn.

One difficulty encountered in these inquiry lessons was finding suitable pictures to fit the concept. One with artistic talents would be greatly helped in this situation. A slide camera personally used by the teacher would also help alleviate the problem.

Individualized Exercises. The greatest satisfaction of the entire study was the manner in which students so enthusiastically pursued what was called for lack of a better term individualized exercises. In the past this teacher and all too many others just assigned something in the way of extra work for the whole class to do over a unit of study or a concept. Or, to make things less time consuming, the questions at the end of the chapter or a few pages from a workbook were assigned.

To meet the needs of both the superior and slow student, exercises were self-constructed by the teacher. At least four and sometimes five different exercises were prepared over each concept. These exercises were actually prescriptions constructed at various levels (see page six). The levels were coded with a number and dots in the upper right hand corner of the exercise. A number with one dot indicated a fairly easy level designed for the slower student. The more dots behind the number the harder the exercise.

These prescriptions were handed out to all students and they personally chose the exercise they wanted to complete. If more than one exercise were chosen, this was perfectly permissible. Students were not aware that each exercise was geared to a certain ability level. Throughout the course of the study students in a majority of the instances selected exercises comensurate with their ability. There were times, however, when slower students selected the more difficult prescriptions and the superior students chose easier exercises. No attempt was made to change the choice the students made.

Again these prescriptions, or exercises, could be labeled job cards or contracts by some educators familiar with individualized instruction.

To create more interest in the exercises available audio-visual materials were employed. Students were familiarized with the equipment and ran this equipment and cared for it themselves. Students listened to exercises recorded on tape, watched film strips, and then answered questions about the content of the film strip, watched overhead projections, and performed tasks associated with the projection, and worked with maps, graphs, and charts. It should be stressed that each level was written with the concept to be learned in mind. Also, different levels were associated with different pieces of audio-visual equipment on a rotating basis so all students eventually became involved in handling each piece of machinery. A sample of the four prescriptions written for the concept on location theory is presented in Appendix C.

All exercises were graded and assigned a mark. The main idea was to determine to what extent the concept was learned.

These exercises above all reinforced each student's thought about the concept. Just from a matter of personal judgment, with no statistics to back up the statement, if after reading in the text, reading the outside readings, and going through the inquiry lesson the concept was not learned it was learned after the completion of the individualized exercise. However, all processes used undoubtedly aided in the understanding.

Post-tests. There are undoubtedly simplier and less time consuming methods of evaluating the students to determine whether they understood the concept than was used throughout the course of this study. However, as a matter of personal satisfaction in seeing each student willingly take a test in which they knew there would be a chance to answer questions about things they had personally become involved with was most rewarding.

All four processes, that is textbook reading, outside reading, inquiry training and the individualized exercises were included on the post-tests. Every student answered the same questions over the textbook reading. This part of the test was kept very general and included a concentration on the areas of discussion that took place between the students and the teacher. The rest of the test was truly individualistic.

Each student was asked to answer one or two questions about the particular outside reading he chose. The inquiry lesson was approached from having each student state what his theory was about the picture. And, finally, each exercise had a separate group of questions written from it and attached to the tests of the individuals having completed that particular exercise. A sample of the test given over the concept on location theory is provided in Appendix D.

When one thinks about the various possibilities involved when each student has freedom of choice in selecting his own outside reading and exercises, making up one standard test for the class becomes impossible. Therefore, test making became a very trying and time consuming chore. As

stated above the results were well worth the effort and this writer plans to continue the practice in the future.

III. METHODS OF TESTING THE HYPOTHESES

To determine whether the students under this study would perform at a higher scholastic average after being exposed to individualized instruction, the following three sets of data were used:

The percentage averages received in each class since the third grade would be obtained from school records and compared with the percentages earned under the study;

The applicable portions of the Iowa Tests of Basic Skills would be used in determining the success of the study. Each student's percentile score on the composite score for the work-study skills since the third grade would be compared with the percentile scores after being exposed to individualization. These Iowa Tests of Basic Skills were selected for the following reasons, which are summarized from the 1965 edition of the Mental Measurement Yearbook: (1) high reliability, (2) the work or study skills portion of the tests indicate a grasp of concepts underlying attainment in geography or social studies, (3) the measurement of the skills on the tests is valuable for use in improvement and individualization of instruction;

It was predetermined that computations in this study regarding the null hypothesis stated in Chapter I must reach the five per cent level of confidence

to be considered significant. The sign test, which is specifically designed to test the effectiveness of one approach as opposed to a different approach (34:288-291) and application of the z score were made to determine the significance of teaching methods using (1) percentages earned in geography in the sixth grade as opposed to the seventh grade, and (2) percentile scores attained on the work-study skills area of the Iowa Tests of Basic Skills in the sixth grade as opposed to the seventh grade. Only the sixth and seventh grades were used in applying the sign test and computation of the z score because the students were exposed to the same teacher which would tend to cut down on some of the variables associated with teacher philosophies in grading.

Two student opinionnaires were used in determining whether an improved attitude existed toward geography after exposure to individualized instruction. A listing of each student's opinion was made concerning (1) Up to the completion of the sixth grade, what is your opinion about geography as a subject? and (2) How has participation in this year's geography class changed your opinion about geography as a subject?

Finally, as a point of interest, each student was asked to answer the following statement: "What is your opinion of the teaching method used in class this semester?" The students' responses to this question are contained in Appendix E.

CHAPTER IV

RESULTS OF THE STUDY

I. CHANGES IN SCHOLASTIC ACHIEVEMENT AND ATTITUDE

This section presents data relative to the two null hypothese presented in Chapter I concerning changes that would occur among students as a result of participating in a program of individualized instruction.

Hypothesis I. Junior high school geography students will exhibit no change in scholastic average after being exposed to individualized instruction.

Three different approaches were used in testing the hypothesis and all methods tended to show a marked increase in individual and class scholastic achievement which would reject the null hypothesis.

When each child's yearly scholastic average in geography at the class level since the third grade was compared with the scholastic average attained at the end of the seventh grade and the study, two of eighteen students or eighteen per cent did not earn higher averages. In other words, under individualized instruction the average percentages earned by each student, except two, was the highest since the third grade. As a result, the class average was also greatly improved. Some children improved a great deal while others improved only slightly. The averages of each child, using first names only for obvious reasons, and the class average is given on Table I.

TABLE I

SUMMARY TABLE OF CLASS GRADES
MEASURED IN PERCENTAGE
FOR GEOGRAPHY

NAMES	Grade 3 1964-65	Grade 4 1965-66	Grade 5 1966-67	Grade 6 1967-68	Grade 7* 1968-69
Douglas	86	83	82	85	92
Gary	72	69	70	71	76
Polly	88	90	85	86	89
Dewey	75	71	70	74	85
Art	68	65	67	73	77
George	91	89	93	94	98
Wayne	83	80	81	85	92
Steven	81	72	78	80	80
Cindy	82	84	83	84	89
Shelly	63	65	62	70	78
Jerry	68	72	73	72	77
Chris	96	97	96	97	99
Gloria	34	30	31	32	47
Brad	78	81	85	83	93
Rob	82	82	84	86	90
Teresa	78	81	80	82	89
Marcia	93	93	95	96	98
Sharon**				82	87
Class Average	77.5	76.7	77.3	79.5	85.3

*Students exposed to individualized instruction for first time.

**Student did not enter the school system until sixth grade.

Test W of the Iowa Tests of Basic Skills measures work-study skills. This includes tests in understanding the concepts of maps, graphs and charts, and references. The composite score of the work-study skills was used in determining the success of the study. Again, each child's percentile was evaluated from the third grade through the seventh grade. Sixteen of the eighteen students had the highest percentile during the five year period in the seventh grade after being taught under individualized instruction. The class average was also the highest in the seventh grade. The Iowa Test averages are included in Table II.

In using the sign test and applying the z scores both the class percentages in geography and the percentile scores on the Iowa Tests approached significances greater than the .05 level of confidence. A z value of at least 1.64 is required for rejection of the null hypothesis at the .05 level (34:291). On the class percentages earned in geography in the sixth grade as opposed to the seventh grade the z score equaled 4.13. The z score applied to differences on the Iowa Tests of Basic Skills was 3.5.[1]

Class Percentage

$$z = \frac{0-NP}{\sqrt{NP\,(1-P)}} \qquad z = \frac{17-8.5}{\sqrt{17x.5x.5}} \qquad z = \frac{8.5}{2.06} \qquad z = 4.13$$

[1]Raw data for these figures are contained in Tables I and II.

TABLE II

SUMMARY TABLE OF PERCENTILE SCORES ATTAINED ON COMPOSITE OF WORK-STUDY SKILLS OF IOWA TESTS OF BASIC SKILLS

NAME	Grade 3 1965	Grade 4 1966	Grade 5 1967	Grade 6 1968	Grade 7* 1969
Douglas	73	55	38	40	81
Gary	31	22	29	16	53
Polly	88	87	81	86	87
Dewey	73	58	46	60	85
Art	49	33	41	16	51
George	96	97	97	98	98
Wayne	73	79	77	79	84
Steven	83	66	77	88	82
Cindy	81	91	72	72	88
Shelly	48	22	32	35	64
Jerry	49	11	26	20	57
Chris	93	96	95	95	95
Gloria	37	1	5	1	7
Brad	66	61	77	45	86
Rob	87	87	93	88	91
Teresa	83	72	68	62	84
Marcia	95	91	90	92	94
Sharon	57	22	54	47	68
Class Average	70.1	58.4	61.0	57.8	75.3

*Students exposed to individualized instruction for the first time.

Iowa Tests of Basic Skills

$$z = \frac{0-NP}{\sqrt{NP\,(1-P)}} \qquad z = \frac{15-8}{\sqrt{16x.5x.5}} \qquad z = \frac{7}{2.0} \qquad z = 3.5$$

Hypothesis II. Junior high school geography students will exhibit no change in attitude towards the subject after being exposed to individualized instruction.

Two possible methods were considered in measuring the attitude of the students. An attitude scale whereby the student would check responses anonymously was foresaken for a written response to questions. It was felt the opinions would allow for more freedom of expression rather than a confined structured scale. Some educators will undoubtedly feel students tend to withhold or exaggerate true feelings when it is known the teacher will know the author of any statement made.

In asking each student to respond there was reassurance that each answer would be viewed as a way in which the teacher could improve his teaching ability and help the individual pupil in becoming a better student.

Grades were not emphasized to the point where students would feel an answer to a question would cause his grades to suffer.

It is also the writer's attitude that students are basically honest when the teacher shows he is honest. The responses, in this writer's opinion, to the questions are in all respects how the student honestly felt.

Before being exposed to individualized instruction, eleven of the eighteen students said for various reasons they did not like geography. One student made no evaluative comment of either a positive or negative nature. After the study seventeen of eighteen responded in a positive manner toward geography indicating reasons for now enjoying the subject. Responses to the questions are contained in Table III. Evaluation of these comments tend to reject the hypothesis, therefore, student attitude will change towards a subject after being exposed to individualized instruction.

II. RESULTS OF STUDENT OPINIONNAIRE ON INDIVIDUALIZED INSTRUCTION

At the conclusion of the study a one-item opinionnaire was given each of the students (Appendix E), and a one-hundred per cent response was obtained. They were asked: What is your opinion of the teaching method (individualized instruction) that was used in class this semester? In regard to the question, all responses included an evaluative statement of a positive nature, such as, "It was very good," or "All classes should be taught this way." In addition to these evaluative statements, each respondent gave a "rationale" for the evaluation. Several themes for these rationale emerged.

Reasons most commonly given for the "good" evaluation was simply that the method of teaching was more student oriented and gave each student the chance to learn things he wanted to learn. Becoming involved in the decision making was also important because it let the student feel important.

TABLE III

STUDENT ATTITUDE TOWARDS GEOGRAPHY
BEFORE AND AFTER INDIVIDUALIZED INSTRUCTION

Code:

(a) - Up to the completion of the sixth grade what is your opinion about geography as a subject?

(b) - How has participation in this year's geography class changed your opinion about geography as a subject?

Douglas:	(a)	Geography is boring. Who cares how much corn is grown in Iowa?
	(b)	I hated geography before. Now it is more interesting.
Gary:	(a)	There's nothing important to learn in geography.
	(b)	Geography is very dull all the time.
Polly:	(a)	All we have ever done in geography is read. That's not very exciting.
	(b)	Yes. Geography is a fun subject now.
Dewey:	(a)	All I ever get is D's. Why should I study?
	(b)	Yes!!! My grades improved so I want to study now.
Art:	(a)	Geography is the best subject because we take field trips all the time.
	(b)	I like geography even more than before.
George:	(a)	I like geography because it is about things that are important for everybody to know about.
	(b)	My opinion hasn't changed too much except I can see why geography is important for schools.

TABLE III (continued)

Wayne:	(a)	Geography is no different than any other subject.
	(b)	I like geography better than any other subject.
Steven:	(a)	If they didn't teach geography I would be all for it.
	(b)	Getting to do things other than just read has made me really like geography.
Cindy:	(a)	Social studies and geography are terrible.
	(b)	I wish geography had been like this in grade school.
Shelly:	(a)	Geography just isn't important.
	(b)	It is my very best class now.
Jerry:	(a)	I can't stand it.
	(b)	Geography is my second favorite subject now.
Chris:	(a)	Geography is important because it is important to know how other people live in the world.
	(b)	I liked geography before the seventh grade but like it even more after your class.
Gloria:	(a)	I don't understand geography.
	(b)	The drawing part was best.
Brad:	(a)	Geography and I don't get along very well.
	(b)	I see why geography is important to learn.
Bob:	(a)	My favorite subject.
	(b)	Geography is more interesting than before.

TABLE III (continued)

Teresa:	(a)	There's nothing interesting about geography.
	(b)	Except for math I couldn't see the reason for most subjects. Now geography is important too.
Marcia:	(a)	All subjects are interesting to me.
	(b)	This year is the first year a subject was made to sound interesting to me.
Sharon:	(a)	Geography is easy to understand so I like it.
	(b)	Yes. My most favorite class.

CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

I. SUMMARY

The purpose of the study was to determine if changes would occur in the academic achievement of a class and if student attitude would change towards geography as a subject after being taught under an individualized instructional program. Student scholastic performance in geography since the third grade was compared to achievement under the individualized program in the seventh grade and student opinions about geography were solicited before and after the study. After the completion of the study, the class was also asked to anonymously express their individual opinions concerning the teaching method they were exposed to the second semester of the school year. A one-item opinionnaire was used to gain the information.

Throughout the course of the study the class was actively involved in discussing their own questions about textbook reading assignments, inquiry training lessons, self-selected outside readings, and self-selected individualized exercises. Each of the above named processes were constructed to emphasize a certain concept. Nine concepts were presented to the class in an individualized manner throughout the course of the study. Post-tests were administered in an individualized manner to test the student's comprehension of the concept.

II. CONCLUSIONS

One is tempted to state without equivocation that individualization is the answer to meeting student needs and is best at meeting individual differences. The results of the study in general and the rejection of the two null hypotheses in particular would seem to support this conclusion. However, there were some drawbacks to the study which would leave room for doubt in some people's minds.

For instance, the fact that there was not a control group may tend to exaggerate the success of the study. Teachers make a big difference in the learning process and it may be that regardless of the teaching method some teachers will get the same results from their classes. The fact that individualization worked for this class may not hold true for another class is another consideration which must be made. Also, there may exist better means and more reliable statistical methods to determine the significant changes that occurred.

However, perhaps the most important consequence of this study was the students' reaction to what can be called a more democratic atmosphere in the classroom. Their reactions suggested an unanimous acceptance of the changes that were initiated in teaching procedures. Students felt they had been successful. There existed a feeling of wanting to do well and to get the work done. One of the very bright students commented one day that "school is for us. This method made school more fun and interesting. I did better because it was worth it to do better."

The final conclusion would be that under the condition of the present study, individualized instruction is a better way of teaching, and until a better method is developed, it will be continued in this writer's classroom.

III. DISCUSSION

Conditions surrounding this study differed from many research environments because it was conducted in a natural and competitive setting rather than under strictly controlled conditions. Therefore, it was next to impossible to apply environmental and situational controls that would have to be in evidence in a truly experimental study. On the other hand, because the study was conducted in a "real" environment, the results should have practical implications.

In the writer's opinion, students expressed more interest in turning in work of a better quality rather than just merely doing the work because it was an ordinary assignment. Pride in workmanship began to prevail. After working on some of the individualized exercises, some students were overheard commenting rather critically about how poor their work had been in the past. Again, the researcher believes students for the most part began to realize what their best effort was and strove to do their best. A sense of self-respect resulted. The fact that they were involved in much of the decision making gave some students a sense of responsibility they had not had before. Throughout the course of the study only one student failed to turn in a single exercise. The most satisfying outcome was the day by day observable growth in self-direction.

It should be apparent that the teacher who uses individualized instruction must have confidence in the students' ability to make decisions which are best for him. It is recognized, of course, that some students and classes will require differing amounts of direction by the teacher, but it is quite probable that, traditionally, teachers have exerted too much direct control.

IV. RECOMMENDATIONS FOR FURTHER STUDY

This study was limited to a small experimental group of students over a four and one-half month period. This fact, coupled with the insight gained as a result of conducting this study, has led the researcher to make the following recommendations for further study:

(1) The small number of subjects in this study warrants retesting of the hypothese with a greater number of subjects;

(2) It might be true that individualized instruction would not work over a long period of time year by year with the same students. It is, therefore, recommended that a study of longer duration be made;

(3) A study could be devised (if adequate controls can be made) contrasting control and experimental groups. If similar ability level classes taught by traditional and individualized instruction could be studied, significant differences might be found;

(4) Conscientious social studies teachers should seriously consider the implications of this study for application in their teaching situations.

The surface has only been touched concerning the psychological ramifications of individualized instruction, and studies should be made and reported by educators who are seriously concerned about the child who is learning to learn.

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APPENDIXES

APPENDIX A

CONCEPTS PRESENTED FOR INDIVIDUALIZED INSTRUCTION

The following concepts in geography were individualized throughout the course of the study. The concepts are presented in the order in which they were taught.

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(1) Environment affects the way man lives, and in turn man modifies his environment.

(2) Culture, which is affected by environment, exerts great influences in the way man lives, perceives, thinks and acts.

(3) The phenomenons of weather and climatic conditions help create and change man's environment.

(4) Because man must use natural resources to survive, man must become concerned about the conservation of natural resources.

(5) Trade exists between countries to satisfy basic human needs and desires and to create economic stability.

(6) Cities, industries and agricultural areas are located where they are due to certain relating factors based on location theory.

(7) Mountains are formed in different ways depending upon certain geological principles.

(8) Glaciers form, disappear and re-form creating various unique physical features.

(9) Stream flows produce unique physical feature associated only with streams.

APPENDIX B

OUTSIDE READING LIST

Concept: Location theory as applied to industry and cities.

Dates: Week of October 4 - October 10.

Havighurst, The Midwest, pp. 27-42

1. Gary	4. Cindy	7.
2. Dewey	5. Bradford	8.
3. Steven	6. Rob	9.

McGraw-Hill, Illustrated World Geography, pp. 381-385

1. Marcia	4. Teresa	7.
2. Douglas	5.	8.
3. Chris	6.	9.

Volume 115, National Geographic, pp. 454-465

1. Marcia	4. Chris	7.
2. George	5.	8.
3. Wayne	6.	9.

Colby, America's Natural Wonders, pp. 39-43

1. Polly	4.	7.
2. Art	5.	8.
3. Jerry	6.	9.

Hillyer, The Americas, pp. 54-62

1. George	4. Gloria	7.
2. Shelly	5.	8.
3. Chris	6.	9.

APPENDIX C

INDIVIDUALIZED EXERCISES

On this page and the following three pages are the individualized exercises given to the class when location theory was being studied. It is reminded the student was free to choose which exercise he wanted to work on. The exercises are presented in the order of difficulty.

GEOGRAPHY Exercise #1.

ASSIGNMENT: VIEW THE FILMSTRIP "CHICAGO". AFTER VIEWING THE FILMSTRIP ANSWER THE FOLLOWING QUESTIONS OR PERFORM THE TASK ASSIGNED.

1. Answer the question on projection 6 which says, "Can you see why Chicago has become the important city that it is today?"

2. List six ways in which the city of Chicago is important to the rest of the United States?

3. Projection 25 refers to the Board of Trade. Explain the Board of Trade? (You may want to consult a reference).

4. Briefly write or orally report on the history of Chicago.

5. Write a fifty word summary on the problems Chicago is having today? (You may want to refer to some recent newspapers)

6. Write a short essay on why you think Chicago is located where it is.

GEOGRAPHY Exercise #1..

ASSIGNMENT: VIEW THE OVERHEAD PROJECTION ENTITLED "THE INDUSTRIAL AND AGRICULTURAL HEARTLAND OF THE U.S." AFTER VIEWING THE PROJECTION OBTAIN A MAP OF THE UNITED STATES AND ADD TO IT THE INFORMATION REQUESTED BELOW. MAKE THE ADDITIONS TO THE MAP AS NEATLY AS POSSIBLE INCLUDING THE PRINTING. ANSWER QUESTIONS FIVE AND SEVEN IN COMPLETE SENTENCES.

1. Construct a legend for the symbols you will be using.

2. Draw a solid black line to show the boundaries of the mid-latitude mixed forest lands. Shade in each state within this boundary a different color.

3. Locate the following cities: Cleveland, Des Moines, Chicago, Indianapolis, Pittsburgh.

4. Make an industrial triangle by connecting Chicago, Cleveland and Pittsburgh. (Draw straight lines)

5. Describe from an industrial standpoint, a related, as to location, theory, how the three cities serve as focal points for the industrial heartland?

6. Make an agricultural triangle by connecting Chicago, Indianapolis and Des Moines.

7. Describe from an agricultural standpo int, as related to the location theory, how the three cities serve as focal points for the agricultural heartland.

GEOGRAPHY Exercise #1...

ASSIGNMENT: SELECT ANY OF THE MID-WESTERN OR NORTHEASTERN STATES OF THE UNITED STATES (ONE STATE). PERFORM THE FOLLOWING TASKS:

1. On a $8\frac{1}{2}$ x 11 sheet of plain paper draw the state either free hand or trace the state from a diagram that is sufficiently large enough to take up most of the sheet of paper.

2. On the map place the more obvious physical features including the rivers. Remember to use the symbols learned for physical features appearing on maps.

3. On the map locate and label the capital city and at least five other important cities.

4. Construct a legend for the map.

5. To accompany the map write a fifty word summary on either the agricultural or industrial importance of that state to the rest of the U.S.

6. For each of the cities you placed on the map explain why you think the cities located where they did. Base your answers on the principles of location theory.

GEOGRAPHY Exercise #1....

ASSIGNMENT: GO TO THE TAPE RECORDER AND LISTEN TO THE RECORDING "WHAT MAKES A CITY GREAT?" THE TAPE HAS A MAP WHICH GOES WITH IT AND THE MAP SHOULD BE OBTAINED FROM THE MAP COLLECTION AT THE BACK OF THE ROOM. AFTER LISTENING TO THE TAPE AS MANY TIMES AS YOU FEEL NECESSARY, ANSWER THE FOLLOWING QUESTIONS.

1. What is meant by a primate city? Name what you would call the primate city for each of the European, African, Asiatic, North American, South American and Australian continents.

2. (a) What is meant by an "urban function?" (see the book The American City)

(b) List five urban functions of New York City.

3. What is the difference between the geographical and political boundaries of a city? (You may want to refer to The American City again)

4. What connection does New York City have with the Middle-West of the United States?

5. Why would it be necessary for the shores of New Jersey and Long Island to be firm and rocky?

6. What two major factors account for the size of metropolitan New York City?

7. What makes a city great?

8. Using the five principles of location theory as the basis of your answer tell why New York City located where it did.

APPENDIX D

INDIVIDUALIZED POST-TEST OVER LOCATION THEORY

This page and the following two pages show the questions asked in test form over the lesson on location theory. Each student received an identical copy of the material appearing on the test portion of this page. The remaining pages only show the questions asked over each exercise and each outside reading. Depending upon the exercise completed and the outside reading would determine what the student would receive for the remainder of his test.

GEOGRAPHY

Test #6
Name_____

THE QUESTIONS GIVEN BELOW COME FROM THE TEXT AND THE MATERIAL DISCUSSED IN CLASS. EACH QUESTION REQUIRES THAT YOU WRITE AN ANSWER IN SHORT ESSAY FORM. ANSWER ALL PARTS OF EACH QUESTION IN COMPLETE SENTENCES AND CORRECT GRAMMATICAL FORM.

1. What are the five factors of location theory and how are they inter-related when it comes to explaining why a city or industrial area locates where it does?

2. Explain why the city of Chicago is becoming more the main city of the United States than New York City?

3. Why are Chicago and St. Louis known as diversified cities when the primary industrial importance of these cities is discussed.

4. Explain the difference between heavy industry, moderate industry and light industry. Give examples of materials that might be produced by these three different kinds of industry.

5. From a transportation standpoint explain by giving examples how the transportation in the industrial heartland of the United States helps explain why this industrial heartland is located where it is?

YOUR LAST INQUIRY LESSON WAS A PICTURE OF A TOWN IN ITS NATURAL SURROUNDINGS AND A PICTURE OF A GHOST TOWN. KEEPING IN MIND WHAT WE HAVE BEEN STUDYING WHAT IS YOUR THEORY ON THE LESSON?

Exercise #1.

THE QUESTIONS BELOW CONCERN THE INDIVIDUALIZED EXERCISE YOU CHOSE TO COMPLETE. ANSWER EACH QUESTION AS BEST YOU CAN.

1. Why is Chicago important to the rest of the U.S. ? Give at least four reasons.

2. What is the Board of Trade?

3. Why is the city of Chicago located where it is?

Exercise #1..

1. Explain the relationship between a map symbol and the legend of a map?

2. What is a scale of mile on a map?

3. For each city below place the state in which that city is located:

Chicago,_____ Cleveland,_____

Des Moines,_____ Indianapolis,_____

Pittsburgh,_____

4. What two triangles did you draw on your map and for what reason did you draw them?

5. Which of the three cities listed in question three serve as the focal points for the industrial triangle?

Exercise #1...

1. What do physical features have to do with cities and/or industries locating where they do?

2. List the names of three cities you placed on your map and give specific points based on location theory why these cities are located where they are.

3. Why is the state you selected important to the rest of the United States?

Exercise #1....

1. Explain what a primate city is?

2. Why would London, England, be a good example of a primate city?

3. How would you tell the difference between the geographical and political boundaries of New York City?

4. Explain the term "urban function."

5. Use Europe as one reason why New York City is located where it is and relate that fact to location theory.

6. What is meant by metropolitan New York City? Has location theory have anything to do with the metropolitan New York City? Explain.

ANSWER EACH OF THE FOLLOWING QUESTIONS ABOUT THE OUTSIDE READING YOU COMPLETED IN NO LESS THAN TWENTY-FIVE WORDS.

Havighurst, The Midwest

Havighurst explains in his book about the corn belt and the wheat belts. Using location theory in relationship to agriculture why are these belts located where

they are?

McGraw-Hill, Illustrated World Geography

This book listed several of the important industries of the United States and where they were located. Natural resources is only one of the reasons the industry locates where it does. What are other easons?

Volume 115, National Geographic

What does this magazine have to say about the future of the industrial heartland of the United States?

Hillyer, The Americas

Summarize what Hillyer had to say about locations of cities.

APPENDIX E

STUDENT OPINIONNAIRE

At the conclusion of the study an opinionnaire was given each student to be answered anonomously. Their individual responses to the questions are listed below.

What is your opinion of the teaching method (individualized instruction) that was used in class this semester?

(1) I feel this type of teaching should be done in all schools.

(2) This taught me some responsibility.

(3) The way this class was taught made school fun and I wanted to come to school.

(4) I wish all teachers would teach this way.

(5) School should be even funner next year.

(6) I like to choose what I want to do. This makes me want to get better grades.

(7) It's nice to not have a teacher just telling you what to do all the time. I don't like that.

(8) Sometimes I wanted to goof off but then what I did was interesting.

(9) The exercises were fun to do.

(10) I wished we had more inquiry lessons. They make you think.

(11) I hope the English teacher teaches this way next year.

(12) Working the machines was the most fun.

(13) It was fun.

(14) School used to be boring because I knew all the answers. Now, I am forced to think.

(15) I don't have to worry about getting D's any more.

(16) This is better than those old workbooks and question boxes at the end of the chapter.

(17) It was very good and I like it.

(18) Before the lessons didn't matter if I finished them. Now, I sometime do two or more.